Bruce,

I would like to explain why I mentioned on our conference call last Friday why the workshop questions come across as "when did you stop beating your wife"-style questions. But first I'd like to apologize. That wasn't the kindest way to make my point. I ask that you, Tim, Brock, and any others that helped formulate the questions accept my apology.

1.   What are the key points of scientific agreement, disagreement, and uncertainty surrounding estuarine habitat and pelagic fishes in the Bay Delta Estuary? How could scientists and agencies "manage the uncertainty" while advancing the protection of water quality and estuarine habitat?

These two questions are missing an important element – what is the definition of "estuarine habitat"? I have noticed that, since Jassby et al. (1995) was published, there has been a tendency for scientists working in the Bay-Delta to use X2, the LSZ, and turbidity interchangeably to mean "habitat" when none of these really are habitat; they are characteristics of habitat. Witness the recent popularity of "abiotic habitat" which uses two water quality characteristics to sweepingly define "habitat" while ignoring all of the other abiotic and biotic factors that, combined, actually do define "habitat" when it aligns with usage of the area by the fish. Then when one reads the "Summary of Key Findings" document provided for the workshop, one cannot help but notice that the areas of agreement are almost all related to X2 and the LSZ, while other important areas of agreement are missing (e.g., delta smelt are not semi-anadromous and can live entirely in fresh water; for all organisms, with the exception of Acartia, for which strong correlations were observed with X2, equal or more significant correlations were observed with nutrients or nutrient ratios, for which there are strong mechanistic explanations in ecological stoichiometry and stable state principles). So the first question leads workshop participants to focus on the LSZ in the context of "habitat" without a full description of what that word means and without a full understanding of the areas of agreement, disagreement, and uncertainties surrounding it.

2.   What is needed to update and improve the State's current approach of managing estuarine habitat with a springtime salinity standard (FEB-JUN)? What key scientific findings and emerging modeling techniques should be applied?

Since the springtime salinity standard was established 15+ years ago, the populations of almost all of the organisms listed by Jassby et al. (1995) as having a correlation with X2 have declined. Instead of asking, "how can we improve the current approach" or "what modeling techniques should be applied", I would think the most important question of the day would be, "Why has the springtime salinity standard failed to maintain or improve populations of almost all of the organisms it was meant to protect"? Being able to use models to fine-tune the resolution of the springtime salinity standard pales in comparison to the

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importance of understanding why the standard is failing. So the second question leads workshop participants to focus on the physical location of X2 rather than the bigger and more important picture of why the estuary's carrying capacity is declining.

3.   What are the drivers in the quality and quantity of estuarine habitat during each season of the year? What biological indicators respond to changing locations of the LSZ between the Carquinez Strait and the western Delta? At the workshop, you'll be asked to fill-in the attached chart of Biological Indicators and Metrics. A sample is attached to stimulate your thinking, and you're encouraged to come to the workshop with ideas for completing this chart.

This is a pretty open question, although it focuses again on the LSZ and hence fails to consider any and all upstream areas (e.g., Cache Slough region). This came across to me as leading in that the Cache Slough region offers an opportunity for some serious comparative analyses of the differences between it and the LSZ in terms of why delta smelt seem to like it there, but it is ignored by the dictates of the question. Unfortunate.

4.   What are the historical and present-day relationships between the LSZ and the landscape of the Bay Delta? How can models be used to forecast the response of selected biological indicators to changing precipitation patterns, rising sea levels, and restoration scenarios?

Again, this question is leading in that the workshop participants are directed to think about "what" has changed instead of "why" changes have occurred (both historically, currently, and in the future), which would be far more informative, because (to me) the "what" lends itself to state regulation more than the "why". The second part assumes that changing precipitation patterns, rising sea levels, and restoration scenarios (BDCP?) will affect the relationship between the LSZ and certain landscape features, which are measurable via the response of "selected" biological indicators. Are the indicators already selected or is that something the workshop participants are going to do? Overall, the water contractors are supportive of life cycle and ecosystem process modeling efforts.

Bruce, the conversation on Friday really demonstrated that there are still a lot of communication issues between us, which is unfortunate. I hope the time comes soon when the entire Bay-Delta science community can speak with a unified voice on what the problems are, why are they occurring, and how they can be fixed.

Sincerely,

Lloyd Fryer